

## REMARKS

Claims 33-51 are pending in this application. Claim 1-16 and 25 were canceled previously. Claims 17-24 and 26-32 were withdrawn previously. Claim 33 has been amended to clarify the embodiment. Support for the amendment to claim 33 can be found throughout the specification and particularly on page 22, lines 15-27 and page 25, lines 24-30 of the as-filed specification. Claims 36, 45, and 46 have been amended for consistency with the amendment to claim 33. No new matter has been added.

In the non-final office action dated May 28, 2009:

- 1) Claims 38, 41, and 44-47 were determined to be allowable if rewritten into independent form and if the rejections under §112 are addressed;
- 2) Claims 33-51 were rejected under 35 U.S.C. §112;
- 3) Claim 33 was rejected under 35 U.S.C. §101;
- 4) Claims 33-37, 39, 40, 43, 48, and 49 were rejected under 35 U.S.C. §102; and
- 5) Claims 42, 50, and 51 were rejected under 35 U.S.C. §103;
- 6) A notice of references cited (PTO form 892) was issued; and
- 7) The IDS filed April 16, 2009 was considered.

Withdraw of all currently applied rejections is respectfully requested for at least the reasons set forth below.

### Allowable Subject Matter

Applicants appreciate that dependent claims 38, 41, and 44-47 would be allowable if the rejections of those claims under §112 are addressed and the claims were rewritten into independent form to include the limitations of the base claim and any intervening claims.

Applicants believe that, in light of the arguments set forth below regarding the §112 and §102 rejections of the independent claim 33, all pending claims are patentable and allowance of all pending claims is respectfully requested.

### Claim Rejections Under 35 U.S.C. §102

Claims 33, 36, 43, 48, and 49 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S Patent No. 6,508,104, Deluca et al. (hereinafter Deluca). Applicants note that Deluca may not be applied to the current application under §102(b), although Deluca may be relevant under another paragraph of §102. Deluca was issued on January 21, 2003 which is less than one year before the priority date of April 16, 2003 claimed by the present application. However, in order to advance prosecution, Applicants respectfully traverse theses rejections because the liquid sample in Deluca's particle adhesion force analyzer does not teach *a biologically active substance that promotes interactions between blood and a transducer element*.

For purposes of background, the claimed embodiments contemplate that blood characteristics, like clotting factors, may be determined by exciting the blood with varying acoustic signals via a transducer and measuring the blood's response to the acoustic excitation. The transducer may be coated with a biologically active substance in order to promote interactions between the blood and the transducer. The biologically active substance may be chosen to promote specific interactions that relate to a blood characteristic of interest. Claim 33 has been amended to recite *a biologically active substance that promotes interactions between blood and a transducer element*.

In the rejection of claim 33, the office action asserts that the liquid sample contacting a sonicator's horn members in Deluca's particle adhesion analyzer teaches a biological substance in communication with a transducer element. But Deluca does not disclose or suggest the claimed *biologically active substance that promotes interactions between blood and a transducer element*. Instead, Deluca teaches a sonicator station that introduces ultrasonic mechanical energy to a liquid sample.

Deluca discloses a particle analysis system that analyzes the adhesion force relationships between small particles in a liquid sample and large particles in the liquid sample. After the sample is prepared, weighed, and mixed, Deluca discloses that the liquid sample is subjected to ultrasonic mechanical energy at a sonication station. Deluca's sonication station converts electrical energy into ultrasonic mechanical energy. The mechanical energy is then transmitted to the liquid sample via horn members that contact the

liquid sample. After sonication, Deluca discloses that the liquid sample is centrifuged and analyzed with a diagnostic instrument.

Deluca further discloses that a data analysis station analyzes the data obtained by the diagnostic instrument in order to determine the adhesive force between the small particles and the large particles before sonication. (See Deluca's Figures 2 and 3; column 10, lines 6-46; and column 13, lines 3-65). However, in contrast to claim 1, Deluca does not disclose or suggest that the sonication station includes *a biologically active substance that promotes interactions between the liquid sample and the sonicator's horn members*. To the contrary, Deluca does not disclose or suggest that any biologically active substance is added to the horn members. Deluca's liquid sample itself is not a biologically active substance that promotes interactions between the liquid sample and the horn members. Deluca merely teaches that the sonicator station introduces ultrasonic mechanical energy through the horn members to the liquid sample.

Therefore, Deluca does not anticipate or render obvious claim 33. Accordingly, Applicants respectfully request that the §102(b) rejections of claim 33 in view of Deluca be reconsidered and withdrawn.

In addition, claims 36, 43, 48, and 49 are believed to be patentable over Deluca for at least the reason that claims 36, 43, 48, and 49 depend from a patentable independent claim and recite further patentable elements. Accordingly, Applicants respectfully request that the §102(b) rejections of claims 36, 43, 48, and 49 in view of Deluca be reconsidered and withdrawn.

Claims 33-35, 37, 39, and 40 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S Patent No. 6,543,274, Herrmann et al. (hereinafter Herrmann). Applicants note that Herrmann may not be applied to the current application under §102(b), although Herrmann may be relevant under another paragraph of §102. Herrmann was issued on April 8, 2003 which is less than one year before the priority date of April 16, 2003 claimed by the present application. However, in order to advance prosecution, Applicants respectfully traverse these rejections because the liquid sample in contact with interdigital transducers in Herrmann's densitometer does not disclose or suggest *a biologically active substance that promotes interactions between blood and a transducer element*.

In the rejection of claim 33, the office action asserts that a liquid sample in contact with interdigital transducers in Herrmann's densitometer teaches a biological substance in communication with a transducer. But Herrmann does not disclose or suggest the claimed ***biologically active substance that promotes interactions between blood and a transducer element.*** Instead, Herrmann teaches that the interdigital transducers introduce acoustic waves to a liquid sample in a substrate to produce oscillating frequencies.

Herrmann discloses a densitometer that determines the density and viscosity of a liquid sample. Herrmann's densitometer has sensors with substrates that include interdigital transducers. Interdigital transducer prongs generate acoustic waves that are directed to the liquid sample that is introduced to the substrates. The acoustic waves generate oscillating frequencies when they interface with the liquid sample and these frequencies are measured by the interdigital transducers. Herrmann discloses introducing the liquid sample to sensors that have liquid traps in the substrate and also to sensors that do not have liquid traps in the substrate. Herrmann teaches that sensors with liquid traps result in oscillation frequencies that are different than oscillating frequencies generated in sensors that do not have liquid traps.

Herrmann determines the density of the liquid sample by determining the oscillating frequencies generated in the sensors with liquid traps and in the sensors without liquid traps and then mixing and filtering both oscillating frequencies. (See Herrmann's Figures 1, 2, and 10; column 4, lines 3-15, column 5, line 62 to column 6, line 23). However, in contrast to claim 1, Herrmann does not disclose or suggest that the densitometer's substrate or interdigital transducers include ***a biologically active substance that promotes interactions between the liquid sample and the substrate or the interdigital transducers.*** To the contrary, Herrmann does not disclose or suggest that any biologically active substance is added to the substrate or the interdigital transducers. Herrmann's liquid sample itself is not a biologically active substance that promotes interactions between the liquid sample and the substrate or interdigital transducers. Herrmann merely teaches that the interdigital transducers introduce acoustic waves to the liquid sample in the substrate to produce oscillating frequencies.

Therefore Herrmann does not anticipate or render obvious claim 33. Accordingly, Applicants respectfully request that the §102(b) rejections of claim 33 in view of Herrmann be reconsidered and withdrawn.

In addition, claims 33-35, 37, 39, and 40 are believed to be patentable over Herrmann for at least the reason that claims 33-35, 37, 39, and 40 depend from a patentable independent claim and recite further patentable elements. Accordingly, Applicants respectfully request that the §102(b) rejections of claims 33-35, 37, 39, and 40 in view of Herrmann be reconsidered and withdrawn.

### **Claim Rejections Under 35 U.S.C. §103**

Claim 42 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Deluca in view of U.S. Patent Application Publication No. 2001/0044584, Kensey. Claims 50 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Deluca in view of U.S. Patent No. 6,673,622, Jina. Claims 51 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Deluca in view of U.S. Patent Application Publication No. 2004/0072357, Stiene.

The dependent claims 42, 50, and 51 are believed to be patentable for at least the reason that the dependent claims depend from a patentable base claim and recite further patentable elements. Accordingly, Applicants respectfully requests that the §103(a) rejections of claims 42, 50, and 51 be reconsidered and withdrawn.

### **Claim Rejections Under 35 U.S.C. §112**

Claims 33-51 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The office action asserts that the “biological substance” recited in claim 33 significantly broadens the claims. Applicants respectfully traverse this rejection.

Without prejudice or disclaimer of the subject matter of claim 33 and in an effort to advance prosecution, claim 33 has been amended to recite a “biologically active substance.” Support for the recitation of a biologically active substance can be found throughout the specification and, for example, on page 22, lines 15-27 and page 25, lines 24-30 of the as-

filed specification. Accordingly, Applicants respectfully request that the §112 rejection of claims 33-51 be reconsideration and withdrawn.

### **Claim Rejections Under 35 U.S.C. §101**

Claim 33 stands rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Specifically, the office action appears to assert that the recited “an inlet port that directs blood” is equivalent to claiming the human body. Applicants respectfully traverse this rejection.

Without prejudice or disclaimer of the subject matter of claim 33 and in an effort to advance prosecution, claim 33 has been amended to recite “an inlet port configured to direct blood to the transducer element” as suggested by the office action. Accordingly, Applicants respectfully request that §101 rejection of claim 33 be reconsidered and withdrawn.

### **Conclusion**

Insofar as the office action’s rejections having been adequately addressed, Applicants believes that the current application, including claims 33-51, is in condition for allowance and such action is respectfully requested.

The Examiner is invited to call the Applicants’ undersigned representative to discuss this application should the Examiner determine such a discussion would facilitate the application’s allowance.

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